Defensible Space and Fire-Resistant Building Materials Save Home from Wildfire

Full Mitigation Best Practice Story

San Diego County, California

Ramona, CA - On Sunday, October 21, 2007, Lisa LeFors of Ramona, CA heard the startling news about the Witch Fire advancing toward her home and started making arrangements to evacuate. She monitored the radio all day and night, and finally, at 2:00 a.m., she gathered up her two dogs and one cat and fled her home.

“I’ve never seen a wind like that,” LeFors explained about the notorious Santa Ana winds. The Santa Ana winds stoked 23 separate Southern California wild fires to a virtual fire storm for four days before subsiding enough to allow fire fighters to contain the flames and ultimately extinguish them.

The largest of the 2007 Southern California fires, the Witch Fire, eventually burned a total of 197,900 acres. As it grew in size, it joined the Poomacha Fire in the north, and together the two fires consumed 247,400 acres and more than 1,200 homes.

LeFors’s adobe ranch-style house was built in 1990 with protection from wildfire danger considered in its design and construction. Besides the noncombustible adobe brick and concrete tile roof, the fire-resistant exterior doors are metal with dual pane glass. The windows, also dual pane, either have metal clad frames or are of glass block.

Because the house is set in approximately the middle of her 10-acre plot, the land is kept relatively clear around the home’s perimeter. Ice plant, which does not burn, grows close to the house, and brick and concrete walkways separate the house from other planted areas. There is evidence of the fire’s scorching only up to the edge of the ice plant growth.

Under current building regulations, adobe brick is no longer permitted in most California counties due to potential seismic hazards. Reinforced masonry (excluding masonry veneers), reinforced concrete block, or reinforced poured concrete walls are among acceptable alternatives to adobe brick.

For more conventional wood framed construction, fire-resistant cladding materials such as cement board siding, metal siding, stucco, and brick veneers may be used subject to local building department and fire department approvals.

When she realized that evacuation was probable, the first thing LeFors did was to clear out the accumulation of leaf debris from under her propane tank that sits about thirty feet from her house. Between the house and propane tank is a four-foot-high adobe patio wall running the depth of the house. This wall also serves as a fire-break.

LeFors keeps vegetation outside of the immediate perimeter of her house mowed very short with a tractor mower to prevent it becoming a fire hazard. Her tractor repairman told her before the fire, “I don’t know anyone who keeps their weeds cut as short as yours.”

Following the firestorm that devastated many areas of San Diego County, she’s very happy that she has that distinction. A lack of fuels kept the fires from becoming more intense as they swept over her property.

One neighbor who stayed in his home instead of evacuating told LeFors when she returned that the flames burned for about two hours before moving on through the neighborhood. Another neighbor’s home burned completely to the ground. LeFors is positive that her house would have burned also if not for the mitigation measures built into her home.

As she was cleaning up after the fire, she found cinders on the exterior window sills, evidence that the fire resistant sills and metal clad window frames prevented the fire from entering the structure.

According to CalFire records, the area near the LeFors home was involved in fires at least four times prior to the construction of the home. Fires of record (300 acres and greater) occurred twice in 1913, once in 1919, and once in 1967. The Witch Fire was the first to test the mitigation measures taken when the house was built and the effectiveness of maintaining a defensible space.

Having avoided the loss of her property, currently valued at $400,000, during this fire, LeFors is now planning to implement additional mitigation measures. Her first priority will be to enclose the overhanging eaves with non-combustible materials. She also plans to remove more of the foundation plantings and some trees that are too close to the house.

Activity/Project Location

Geographical Area:	**Single County in a State**
FEMA Region:	**Region IX**
State:	**California**
County:	**San Diego County**
City/Community:	**Ramona**

Key Activity/Project Information

Sector:	**Private**
Hazard Type:	**Wildfire**
Activity/Project Type:	**Building Codes**
Structure Type:	**Concrete, Reinforced**
Activity/Project Start Date:	**01/1990**
Activity/Project End Date:	**08/1990**
Funding Source:	**Property Owner, Residential**
Funding Recipient:	**Property Owner - Residential**

Activity/Project Economic Analysis

Cost:	**Amount Not Available**

Activity/Project Disaster Information

Mitigation Resulted From Federal Disaster?	**No**
Value Tested By Disaster?	**Yes**
Tested By Federal Disaster #:	**1731 , 10/24/2007**
Repetitive Loss Property?	**No**

Reference URLs

Reference URL 1: **http://www.fire.ca.gov/wildland.php**

Reference URL 2: **http://www.fema.gov/library/viewRecord.do?id=3026**

Main Points

- The Santa Ana winds stoked 23 separate Southern California wild fires to a virtual fire storm for four days before subsiding enough to allow fire fighters to contain the flames and ultimately extinguish them.
- Lisa LeFor evacuated, but her home stayed virtually unharmed due to mitigation measures.
- Besides the noncombustible adobe brick and concrete tile roof, the fire-resistant exterior doors are metal with dual pane glass.
- The windows, also dual pane, either have metal clad frames or are of glass block.
- Because the house is set in approximately the middle of her 10-acre plot, the land is kept relatively clear around the home's perimeter.
- Ice plant, which does not burn, grows close to the house, and brick and concrete walkways separate the house from other planted areas.
- Having avoided the loss of her property, currently valued at $400,000, during this fire, LeFors is now planning to implement additional mitigation measures.

Defensible space along one side of LeFors home.

Wildfire did not cross this brick walkway.

Fire resistant window frames and glass.

Wildfire stopped by ice plant ground cover.